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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,633	12/04/2003	Yasushi Sugimoto	0229-0781P	6199

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EXAMINER
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BLAU, STEPHEN LUTHER

ART UNIT	PAPER NUMBER
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3711

DATE MAILED: 08/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/726,633

Applicant(s)

SUGIMOTO, YASUSHI

Examiner

Stephen L. Blau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 3-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16 is/are allowed.
- 6) ☒ Claim(s) 3-5, 8-13 and 15 is/are rejected.
- 7) ☒ Claim(s) 6, 7 and 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Canceling claims 1-2 are agreed with and the objections are removed.

### ***Specification***

2. The changes to the drawings and the specification are agreed with and the objection to the specification is removed.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4-5, 8 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over 2001-29523 in view of Lundberg (5,295,686) and Lockwood (3,751,035), Boone (6,379,262), Aizawa (5,669,824), and 9-192270.

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2001-29523 discloses an iron having a face plate, a receiving portion supporting a peripheral edge portion of the face plate, a thin portion and a thick portion in a free deflection area which a back surface faces an opening portion, a thin portion occupying 15-70 % of the free deflection area (Figs. 3c and 3d), a thickness of the thin portion being between 1.2 to 2.0 mm, a thickness of a thick portion being between 2 and 4 mm, the difference between the thickness of the thick and thin portions being .2 to 1.5 mm (Verbal Translation [0022], [0023]) and a horizontal distance between a face center and a center of figure of the thin portion being able to be changed (Figs. 3c and 3d).

2001-29523 lacks a set of irons, three or more irons with different lofts, a horizontal distance between a face center and a center of figure of the thin portion satisfies the conditions of claim 8, a horizontal distance between a face center and a sweet spot satisfies the conditions of claim 8 (i.e. sweet spot closer to the toe for small lofted clubs), and a sweet spot being provided at a center of the figure of a thin portion.

Lundberg discloses a set of irons, three or more irons (Tables I and III) with different lofts (Col. 4, Lns. 41-65), adjusting a shape and location of the center of the shape of a thin portion (21) and a thick portion in the from of raised portion (22) in a cavity of an iron (2) to change the center of gravity of low lofted club to be closer to the heel and a center of gravity of a high lofted club to be closer to a toe (i.e. center of figure of the thin portion will be closer to the toe for smaller lofted clubs and satisfy the conditions of claim 1) (Figs. 13-14, Col. 7, Lns. 40-53) in order to have less drag in longer, less lofted clubs, have more inertial drag in the shorter, more lofted clubs and utilize the gear effect phenomenon inherent in clubs more effectively (Abstract). In view

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of the patent of Lundberg it would have been obvious to modify the iron of 2001-29523 to be a set of irons and the set having three or more irons with different lofts in order to utilize the advantages of an iron of 2001-29523 for a set of irons and in order to have more than one different type of lofted club to choose from when playing a round of golf. In view of the patent of Lundberg it would have been obvious to modify the set of irons of 2001-29523 to have a horizontal distance between a face center and a center of figure of the thin portion satisfies the conditions of claim 1 (i.e. center of the thin portion is closer to the toe for small lofted clubs (C.G. is closer to the heel for smaller lofted clubs)) in order to have less drag in longer, less lofted clubs, have more inertial drag in the shorter, more lofted clubs and utilize the gear effect phenomenon inherent in clubs more effectively.

Lockwood discloses a sweet spot being at the minimum face thickness for an iron head (Figs. 3-5). Boone discloses a sweet spot being at the minimum face thickness for an iron head in order for the face to deflect or deform at impact (Fig. 3, Claim 1, Col. 1 Lns. 65 through Col. 2, Lns. 4). Aizawa discloses an iron head (Title) having a face portion having a thin portion which has the minimum thickness being provided on a sweet spot (Abstract, Fig. 6) and a sweet spot being provided at the center of the figure of a thin portion (Figs. 8, 10). 9-192270 discloses a head with a sweet spot where the face is thinnest for causing repulsive characteristics in hitting a ball (English Abstract). In view of the references of Lockwood, Boone, Aizawa, and 9-192270 it would have been obvious to modify the set of irons of 2001-29523 to have a sweet spot at the center of the figure of the thin portion in order to have repulsive

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characteristics as a trampoline in hitting a ball to maximize distance when hitting a ball. As such due to the horizontal distance between a face center and a center of figure of the thin portion satisfies the conditions of claim 8 the a horizontal distance between a face center and a sweet spot would also satisfies the conditions of claim 8 (i.e. sweet spot closer to the toe for small lofted clubs).

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over 2001-29523 in view of Lundberg (5,295,686) and Lockwood (3,751,035), Boone (6,379,262), Aizawa (5,669,824), and 9-192270 as applied to claims 4-5, 8 and 11-13 above, and further in view of Ezaki.

2001-29523 lacks a center of gravity depth as defined by claim 3 (depth decreases as loft increases). Ezaki discloses a center of gravity depth as defined by claim 3 (depth decreases as loft increases) (Figs. 6-8, Ref. Zg) and the deeper the center of gravity the easier it is to spin a ball (Col. 1, Lns. 26-33) in order to not have gaps in trajectory height and carry between irons and woods in a set (Col. 2, Lns. 4-27). In view of the patent of Ezaki it would have been obvious to modify the set of irons of 2001-29523 to have a center of gravity depth as defined by claim 3 (depth decreases as loft increases) in order to have a set of irons combined with a set of woods not having gaps in trajectory height and carry.

6. Claims 9-10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over 2001-29523 in view of Lundberg (5,295,686) and Lockwood (3,751,035), Boone

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(6,379,262), Aizawa (5,669,824), and 9-192270 as applied to claims 4-5, 8 and 11-13 above, and further in view of Shiraishi (5,885,166) and Fujimura (4,848,747).

2001-29523 a face insert having one thin portion being formed on the side of the toe of the free deflection area and one thick portion being formed on the side of the heel (Fig. 3d) and another face insert having a thin portion formed on the heel side from the center of the free deflection area and one thick portion being formed on the toe side of the thin portion (Fig. 3c).

2001-29523 lacks at least one long iron having a loft not more than 28 degrees, at least one middle iron having a loft being more than 28 degrees and equal to or less than 41 degrees, at least one short iron having a loft of not less than 41 degrees, a long iron having one thin portion being formed on the side of the toe of the free deflection area and one thick portion being formed on the side of the heel, a middle iron having a thin portion being formed approximately in the center of the free deflection area and two thick portions being formed on both sides of the thin portion, a short iron having a thin portion formed on the heel side from the center of the free deflection area and one thick portion being formed on the toe side of the thin portion, at least one long iron having a horizontal distance  $X_i$  of from  $-5$  to  $0$  mm, at least one middle iron having a horizontal distance  $X_i$  of from  $-3$  to  $3$  mm, at least one short iron having a horizontal distance  $X_i$  of from  $0$  to  $5$  mm, the horizontal distance  $X_i$  of the middle iron being larger than that of the long iron and the horizontal distance  $X_i$  of the short iron being larger than that of the middle iron.

Lundberg discloses adjusting a shape and location of the center of the shape of a thin portion (21) and a thick portion in the from of raised portion (22) in a cavity of an iron (2) to change the center of gravity of low lofted club to be closer to the heel and a center of gravity of a high lofted club to be closer to a toe (i.e. center of figure of the thin portion will be closer to the toe for smaller lofted clubs (Figs. 13-14, Col. 7, Lns. 40-53). Fujimura discloses incrementally moving the entire cavity of an iron from the toe side to the heel side (Figs. 3-4, Col. 3, Lns. 31-34) in order to have the center of gravity biased toward the toe for long irons and the center of gravity biased toward to the heel for short irons (Col. 1, Lns. 28-39) such that a ball struck with the shooting surface of any head in a set will travel a substantially stabilized course (Claim 1). In addition, Lundberg (Figs. 8-9 comparing the CG change in locations to the HH and HT dimensions) discloses changing the center of gravity small amounts and Fujimura (Figs. 3-4) disclose changing the cavity location in small amounts. In view of the different embodiments of 2001-29523 and the patents of Lundberg and Fujimura it would have been obvious to modify the set of irons of 2001-29523 to have a long iron having one thin portion being formed on the side of the toe of the free deflection area and one thick portion being formed on the side of the heel, a middle iron having a thin portion being formed approximately in the center of the free deflection area and two thick portions being formed on both sides of the thin portion, a short iron having a thin portion formed on the heel side from the center of the free deflection area and one thick portion being formed on the toe side of the thin portion, at least one long iron having a horizontal distance  $X_i$  of from  $-5$  to  $0$  mm, at least one middle iron having a horizontal distance  $X_i$  of from  $-3$



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to 3 mm, at least one short iron having a horizontal distance  $X_i$  of from 0 to 5 mm, the horizontal distance  $X_i$  of the middle iron being larger than that of the long iron and the horizontal distance  $X_i$  of the short iron being larger than that of the middle iron in order to incrementally move the center of gravity from the heel for long irons to the toe for short irons.

Shiraishi discloses at least one long iron having a loft not more than 28 degrees, at least one middle iron having a loft being more than 28 degrees and equal to or less than 41 degrees, and at least one short iron having a loft of not less than 41 degrees (Table 1). In view of the patent of Shiraishi it would have been obvious to modify the set of irons of 2001-29523 to have at least one long iron having a loft not more than 28 degrees, at least one middle iron having a loft being more than 28 degrees and equal to or less than 41 degrees, and at least one short iron having a loft of not less than 41 degrees in order to have different irons with different hitting distances for the same swing to select from when playing a round of golf.

### ***Allowable Subject Matter***

7. Claims 6-7 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. With respect to claims 6-7, none of the prior art discloses or renders as obvious a set of irons having a thin portion of a trapezoidal shape with a longer length at a sole than on a side of a top, a horizontal

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distance between a face center and a center of figure of the thin portion satisfies the conditions of claim 8, and a horizontal distance between a face center and a sweet spot satisfies the conditions of claim 8 in addition to the other elements of structure claimed.

With respect to claim 14, none of the prior art discloses or renders as obvious weight members located as defined by the claim in addition to the other elements of structure claimed.

8. Claim 16 is allowed. None of the prior art discloses or renders as obvious a thin portion having an approximately trapezoidal shape with the horizontal length on the side of the sole portion being longer than the length on the side of the top portion in addition to the other elements of structure claimed.

### ***Response to Arguments***

9. Applicant's arguments with respect to claim 3-8 have been considered but are moot in view of the new ground(s) of rejection. Due to the new art this action is not made final.

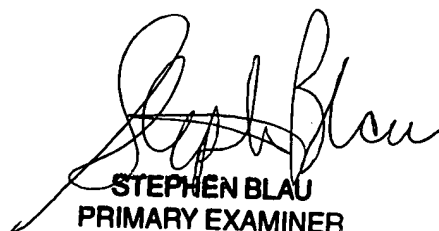
**Conclusion**

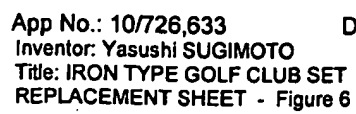
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen L. Blau whose telephone number is (571) 272-4406. The examiner can normally be reached on Mon - Fri 10:00 AM - 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eugene Kim can be reached on (571) 272-4463. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Slb/ 17 August 2006

  
**STEPHEN BLAU**  
**PRIMARY EXAMINER**



Inventor: Yasushi SUGIMOTO  
Title: IRON TYPE GOLF CLUB SET  
REPLACEMENT SHEET - Figure 6

Approved  8/17/06